

Evaluation of Stress Levels in Both Parents of Newborns Hospitalized in the Neonatal Intensive Care Unit

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ABSTRACT

Introduction: The birth of a child that requires hospitalization in a Neonatal Intensive Care Unit (NICU) can be very stressful for parents. **Objective:** To determine the stress level of parents of newborns hospitalized in a level III NICU of Düzce University Faculty of Medicine Hospital, and its association with clinical and sociodemographic variables. **Patients and Method:** Descriptive cross-sectional study. Mothers and fathers whose babies were hospitalized in the NICU during these dates, who visited their babies regularly, and who had written consent were included in the study. **Instruments:** i) Questionnaire to obtain data which could not be obtained from the medical record; ii) Parental Stress Scale: Neonatal Intensive Care Unit (PSS:NICU) which measures the perception of parents about stressors from the physical and psychological environment of the UPCN. SPSS package (Statistical for the Social Sciences, Version 21) program was used to evaluate the data. For the comparison of discrete variables, the chi-square test was used; for the continuous variables, the Student's t-test was used. **Results:** In our study, it was determined that there was a positive correlation between the increase in the infant's need for respiratory support and all the sub-units of the mother's stress scale and the father's stress scale 'baby's appearance and behavior' sub-unit, and a positive correlation was found between vaginal delivery and maternal stress scale 'images and sounds' and 'parental role in relation to the baby' sub-unit. In the correlation analyzes performed with the baby's apgar scores, it was determined that the apgar score showed a negative correlation between the maternal stress scale's 'images and sounds' and 'baby's appearance and behavior' subunits.

Keywords: Neonatal Intensive Care Unit, Parental stress, Newborn

INTRODUCTION

The neonatal period is a sensitive period in which infant deaths are common. In this period, the fact that their babies are admitted to the neonatal intensive care unit (NICU) due to health problems is a source of great stress for their parents, who have been waiting for months to hold them in their arms. The birth process, the devices in the newborn intensive care unit where the baby is hospitalized, environmental factors

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such as images, sounds, the appearance of the baby due to the devices, health problems in the baby are the biggest causes of stress for parents. Anxiety about having a sick child or not getting well further increases this stress [1,2].

Stress and the negative emotional states it brings continue to be effective after discharge. The fact that the baby is away from the family, and especially from the mother, causes parent-baby bonding, and more importantly, the bond between mother and baby cannot be fully established. In addition, many factors such as separation of parents from their babies, illness, the appearance of their babies attached to cables cause stress disorders such as anxiety and depression to be seen more in this process [2-4]. For this reason, studies to eliminate the stress and related conditions of parents whose babies are hospitalized in the neonatal intensive care unit will contribute to the provision of a healthier baby-parent relationship.

This study aimed to determine the causes and levels of stress in mothers and fathers whose babies are hospitalized in the NICU, and to contribute to the establishment of healthier parent-infant relationships by minimizing these with further studies.

MATERIALS AND METHODS

A descriptive and cross-sectional study was conducted between May 1, 2020, and September 1, 2020, at the NICU of Düzce University Faculty of Medicine Hospital. Mothers and fathers whose babies were hospitalized in the NICU during these dates, who visited their babies regularly, and who had written consent were included in the study. Families were informed about the purpose of the study and the forms, and approval was obtained from the ethics committee of Düzce University Medical Faculty Hospital. For demographic data, a questionnaire with 13 questions was filled in by the parents. In the study, the "NICU Parental Stress Scale" was used to determine stress factors and stress levels.

Parental Stress Scale: Neonatal Intensive Care Unit [5] measures the parents' perception of the stress factors coming from the physical and psychological environment of

the NICU. The scale is self-applied and it is composed of 34 items that are grouped into 3 subscales: "Sights and sounds", "Aspect and behavior of the Neonatal" and "Relationship with the baby and parental role". This scale has been widely used in the neonatal literature 1,5,8,17,23-31 and has been shown to have high validity and reliability [6,7].

The scale is a six-point Likert scale and consists of 34 questions in total. The answer to each question ranges from "not applicable (0)" to "extremely stressful" [8]. Those with an average score of between 3.0 and 3.40 are considered moderately stressed, and those with an average score of more than 3.40 are considered very stressful. As the scale score increases, the stress level increases.

Statistical analysis

SPSS package (Statistical for the Social Sciences, Version 21) program was used to evaluate the data. A sample size of at least 55 respondents was defined, calculated with an estimated mean of 3 in the stress indicator for the population, with an estimated standard deviation of 0.85, a 95% confidence level and a precision level of + 0.2. For the comparison of discrete variables, the chi-square test was used; for the continuous variables, the Student's t-test was used. Cronbach's alpha coefficient was used to calculate the total dimension and sub-dimension reliability coefficient of the scale. A P value of <0.05 was considered statistically significant.

Ethical matters

Parents who participated in the study had to previously sign an informed consent. The treatment team was not aware of the results of the survey and participation in this study did not involve changes or variations in the clinical management of the patients. The study was approved by the Scientific Ethics Committee of Duzce University.

RESULTS

-Epidemiological data of women (mothers) and men (fathers) are given in Table 1.

Table 1: Epidemiological data of women (mothers) and men (fathers)

Mother's Age	<20	5 (8.3%)
	21-30	37 (61,7%)
	31-40	15 (25%)
	>41	3 (5%)
Father's Age	<20	1 (1.7%)
	21-30	23 (38,3%)
	31-40	29 (48,3%)
	>41	7 (11.7%)
Mother's education	Primary school graduate	16 (26,7%)
	Middle school graduate	10 (16.7%)
	High school graduate	22 (36,7%)
	Graduated from a Universty	12 (20%)
Father's education	Primary school graduate	12 (20%)
	Middle school graduate	13 (21.7%)
	High school graduate	21 (35%)
	Graduated from a Universty	14 (23,3%)
Mother working status	working	23 (38,3%),
	Not working	37 (61.7%)
Father working status	working	51 (85%)
	Not working	9 (15%)
Residential area	Metropolitan Region	32 (53,3%)
	Town	15 (25%)
	Village	13 (21.7%)
Family type	Nuclear family	47 (78,3%)
	Extended family	13 (21.7%)

-Of the babies included in the study, 26 were girls (43.3%) and 34 (56.6%) were boys.

-The delivery method of the babies included in the study was vaginal in 10 (16.7%) and cesarean section in 50 (83.3%) babies.

-The correlation analysis findings of the stress scales that were filled by the mothers and fathers are shown in table 2.

Table 2: The correlation analysis findings of the stress scales that were filled by the mothers and fathers.

		Father-Sights and sounds	Father-Aspect and behavior of the Neonatal	Father's Role	Father-Total Scale
Mother-Sights and sounds	<i>r</i>	0,201	0,194	-0,002	0,224
	<i>p</i>	0,124	0,138	0,987	0,086
Mother-Aspect and behavior of the Neonatal	<i>r</i>	0,082	0,477	-0,131	0,311
	<i>p</i>	0,535	<0,001	0,318	0,016
Mother's Role	<i>r</i>	0,145	0,178	0,015	0,146
	<i>p</i>	0,270	0,173	0,907	0,266
Mother- Total Scale	<i>r</i>	0,138	0,419	-0,106	0,310
	<i>p</i>	0,292	0,001	0,420	0,016

Pearson correlation analysis was used

-The correlation analyzes of the baby's APGAR 1st minute and Apgar 5th minute values and the parental stress scales are shown in table 3.

Table 3: The correlation analyzes of the baby's APGAR 1st minute and Apgar 5th minute values and the parental stress scales

		Father-Sights and sounds	Father-Aspect and behavior of the Neonatal	Father's Role	Father-Total Scale	Mother-Sights and sounds	Mother-Aspect and behavior of the Neonatal	Mother's Role	Mother-Total Scale
APGAR 1st min.	<i>r</i>	-0,021	0,050	0,016	0,032	-0,231	-0,337	-0,12	-0,316
	<i>p</i>	0,876	0,704	0,903	0,806	0,076	0,008	0,363	0,014
APGAR 5.th min.	<i>r</i>	-0,102	-0,067	0,015	-0,065	-0,297	-0,392	-0,06	-0,346
	<i>p</i>	0,439	0,612	0,908	0,623	0,021	0,002	0,620	0,007

Pearson correlation analysis was used

-In the analyzes comparing the sex of the baby and the stress of the parents, it was seen that the gender of the girl and the stress scale of the father's "baby's appearance and behavior" subscale showed a positive correlation ($p < 0.05$).

- In the comparison of delivery type and parental stress, a significant positive correlation was found between vaginal delivery and maternal stress scale's 'images and sounds' and 'parental role in relation to the baby' subscales ($p < 0.05$).

DISCUSSION

Newborns may stay in the NICU for a long time due to some health problems they experience. Being away from the family of a newborn baby leads to insufficient interaction between the baby and the parent, and a delay in establishing the physical and emotional bond between the baby and the mother. In addition, it partially prevents them from caring for the baby, causing a decrease in the self-esteem of the parents, feeling guilty and feeling unsuccessful [2,4,9,10].

In a study conducted by Holditch-Davis and Miles, it was determined that the infants' admission to the NICU was a source of intense stress for their parents [11]. In addition, the baby's not sucking, diarrhea, diaper rash, jaundice, low weight gain and many health problems increase the anxiety and stress levels in mothers, and even cause more serious psychological problems. NICUs seem scary for families due to environmental conditions such as bright lights, noisy life support units, staying in an incubator, and monitoring. Invasive procedures, constantly changing healthcare professionals increase the anxiety and stress levels of parents even more [11-14].

In addition, such an environment causes the mother to not be able to fulfill her motherhood role, to feel helpless in helping her baby, to not be able to hold her baby whenever she wants, to not be able to protect her baby from painful practices, and to feel inadequate in the care of the baby [15]. We believe that this result in our study is due to the social and environmental differences of fathers.

In our study, it was determined that there was a positive correlation between the increase in the infant's need for respiratory support and all the sub-units of the mother's

stress scale and the father's stress scale 'baby's appearance and behavior' sub-unit. In some studies, supporting our study, it has been shown that the stress level of parents increases with the increase in the need for respiratory support in infants [16].

We believe that the fact that more mothers stay as companions in the NICU and witness the procedures and interventions throughout the day causes mothers to be more stressed in all areas. In addition, the fact that the father only sees his child during visits supports the stress of the child's visual situation to come to the fore. In the study conducted by Calisir et al. in 2008, it was determined that mothers experienced more anxiety than fathers, which is similar to our study [4].

In our study, a positive correlation was found between vaginal delivery and maternal stress scale 'images and sounds' and 'parental role in relation to the baby' sub-unit. In a study, unlike our study, no statistically significant difference was found between the total score of the mothers from the NICU Parent Stress Scale and the way their babies were delivered [17]. In a study by Cho MY, et al. it was found that the mode of delivery did not play a role in the perception and interaction of mothers with their babies [18]. In another study by Çoban et al., it was argued that the mode of delivery did not affect the anxiety level of mothers [19]. In other studies, it was stated that mothers were less interested in their babies after birth with C/S and they were dissatisfied with this situation [20,21].

We found different results in our study, and we think that mothers' being alert, having a higher perception of their surroundings, seeing or hearing all medical interventions

to the child more closely increases their stress level during vaginal delivery. We believe that this stress affects the attachment and motherhood role of the mother even more negatively.

In our study, a positive correlation was found between the length of hospital stay of the newborn and the mother's stress scale 'the relationship between the baby and the role of the mother and father'. Some studies support our study, and it has been shown that even for a very short time, hospitalization of infants in the NICU causes stress and crisis in families [22].

In the study of Turner M, et al. it was determined that parents whose babies stayed in the NICU experienced stress because they could not fulfill the role of mother and father [23]. In the study of Sözeri's unpublished master's thesis, it was found that parents' stress levels increased because they did not participate in the care of their baby, could not feed it, and could not hold it whenever they wanted [24].

CONCLUSION

It is an important problem for parents that their babies are being treated in the NICU. This situation causes intense anxiety and stress in families. Reducing the resulting stress and delivering the babies to mentally healthier parents on discharge is as important as the treatment of babies. For this, families should be informed more and more clearly about the intensive care environment and the condition of the baby, and parents should be provided with opportunities to participate in the care of babies as much as possible. In addition, in-service training programs on effective communication skills should be given to doctors, nurses and health personnel working in the neonatal intensive care unit, and families should be supported to get through this process better.

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None

CONFLICT OF INTEREST

None

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